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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,472	07/30/2001	Hiroaki Hoshi	35.C15638	8751

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EXAMINER

LUU, THANH X

ART UNIT PAPER NUMBER

2878

DATE MAILED: 10/23/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/916,472

Applicant(s)

HOSHI ET AL.

Examiner

Thanh X Luu

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. U.S. Application 08/493,614 listed on the IDS received on October, 22, 2001 is now U.S. Patent 6,346,657, which has been considered and cited on PTO-892 Notice of References Cited.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "5" mentioned on page 4, referring to Figure 1; and "1'" mentioned on page 10, referring to Figure 4. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 12, since the phrase "two image pickup units are used with being combined with each other" is grammatically incorrect it is unclear in its given context what Applicant intended to claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3-6, 11 and 12, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Langdon et al. (U.S. Patent 5,353,109).

Regarding claims 1, 3-6, 11 and 12, Langdon et al. disclose (see Figure 1) an image pickup apparatus, comprising: an image pickup unit having an array of a plurality of photodetection elements (6); a light-emitting element unit (1, 7, 8, 9, 11), including a semiconductor laser (part of 1), for emitting reference light (10) having a predetermined frequency difference ("heterodyne frequency"; see also column 4, lines 23-35) with respect to a frequency of light incident (4a) on the image pickup unit; and a wave synthesizer (14) for synthesizing the incident light and the reference light from the light-emitting unit and guiding the synthesized light to the image pickup unit. Langdon et al. further disclose (see column 4, lines 17-35) the predetermined frequency difference (heterodyne frequency) is modulated according to a predetermined rule and is constant. Langdon et al. also disclose (see Figure 1) the light-emitting element unit is provided in common to each of the photodetection elements. That is, light from the light-emitting

element unit reaches all of the photodetection elements. Langdon et al. also disclose (see Figure 1) an optical system (5) for focusing light on the image pickup unit and a signal processing circuit (see Figure 4) for processing an output signal from the image pickup unit. Further, Langdon et al. disclose (see Figure 2) more than two image pickup units are combined to be used. That is, each image pickup unit comprises one row or column of photodetection elements.

8. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Brosnan et al. (U.S. Patent 5,610,705).

Regarding claims 1 and 2, Brosnan et al. disclose (see Figure 2) an image pickup apparatus, comprising: an image pickup unit having an array of a plurality of photodetection elements (24); a light-emitting element unit (10) for emitting reference light (32) having a predetermined frequency difference with respect to a frequency of light incident (16) on the image pickup unit; and a wave synthesizer (20) for synthesizing the incident light and the reference light from the light-emitting unit and guiding the synthesized light to the image pickup unit. Brosnan et al. further disclose (see Figure 2 and column 5, lines 5-8) the configuration is a homodyne configuration in which both the incident beam and the reference beam are being generated by a single source and the frequency difference (offset) is zero (see column 5, lines 58-61). Thus, the predetermined frequency difference is 0 as claimed.

9. Claims 1, 7 and 11, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Pace et al. (U.S. Patent 3,746,454).

Regarding claims 1, 7 and 11, Pace et al. disclose (see Figure 1) an image pickup apparatus, comprising: an image pickup unit having an array of a plurality of photodetection elements (12-14); a light-emitting element unit (7) for emitting reference light having a predetermined frequency difference with respect to a frequency of light incident (3) on the image pickup unit; and a wave synthesizer (8) for synthesizing the incident light and the reference light from the light-emitting unit and guiding the synthesized light to the image pickup unit. Pace et al. further disclose (see Figure 1) a microlens array (9-11) provided for each of the photodetection elements. Pace et al. also disclose (see Figure 1) an optical system (25) for focusing light on the image pickup unit and a signal processing circuit (18) for processing an output signal from the image pickup unit.

10. Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Wagner et al. (U.S. Patent 5,450,223).

Regarding claims 1 and 8, Wagner et al. disclose (see Figure 6) an image pickup apparatus, comprising: an image pickup unit having an array of a plurality of photodetection elements (428a-n); a light-emitting element unit (416) for emitting reference light (436) having a predetermined frequency difference (heterodyne mixing) with respect to a frequency of light incident (420a-n) on the image pickup unit; and a wave synthesizer (610a-n, 612a-n, 614a-n) for synthesizing the incident light and the reference light from the light-emitting unit and guiding the synthesized light to the image pickup unit. Wagner et al. further disclose (see Figure 6) the wave synthesizer comprises a light waveguide (614a-n) provided for each of the photodetection elements.

11. Claims 1 and 9-11, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Miyagawa et al. (U.S. Patent 5,555,087).

Regarding claims 1 and 9-11, Miyagawa et al. disclose (see Figure 1) an image pickup apparatus, comprising: an image pickup unit having an array of a plurality of photodetection elements (30); a light-emitting element unit (20, 21, 22, 37, 32) for emitting reference light (S2) having a predetermined frequency difference with respect to a frequency of light incident (a5/a6) on the image pickup unit; and a wave synthesizer (42) for synthesizing the incident light and the reference light from the light-emitting unit and guiding the synthesized light to the image pickup unit. Miyagawa et al. further disclose (see Figure 1) an electric filter (34) adapted to extract a desired frequency band from outputs from the photodetection elements and controlling the frequency (with 32) of the reference light (s1) by using an output from the electric filter. Miyagawa et al. also disclose (see Figure 1) an optical system (44) for focusing light on the image pickup unit and a signal processing circuit (31) for processing an output signal from the image pickup unit.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Takaoka et al. (U.S. Patent 6,356,657) discloses an image processing method and apparatus.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-

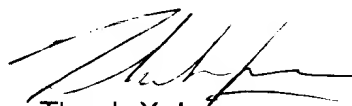
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0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta, can be reached on (703) 308-4852. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl
October 18, 2002


Thanh X. Luu
Patent Examiner